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chosen for the comparisons of brightness, and the stars already known to be variable, all the positions being given in seconds of arc, and determined from the center of the particular cluster. In Plates VIII. to XII. are given reproductions from the original plates of fourteen clusters, on which the variables and comparison stars are marked. On these reproductions 1 mm. equals about 10". Especially interesting are the repeated enlargements of certain portions of some clusters, which are given in the last plate of the volume. These show clearly the change in appearance of the variables on different plates, and give an idea of the certainty with which the comparison with adjacent stars can be made.

From the materials given in the appendix one sees that there still remains a very great amount of labor to be done. We hope that the author will be able to carry out his plan, and to give as clear and exhaustive a discussion of the light changes in the other star clusters, as he has done in the present volume.*

G. MÜLLER.

SCIENTIFIC JOURNALS AND ARTICLES.

THE contents of the *American Journal of Science* for November are as follows: 'Mineralogical Notes,' by C. H. Warren; 'Studies of Eocene Mammalia in the Marsh Collection, Peabody Museum' (with plates XVI. and XVII.), by J. L. Wortman; '*Tridenum Virginicum* (L.) Rafn,' a morphological and anatomical study (with figures in the text), by T. Holm; 'Ephemeral Lakes in Arid Regions,' by C. R. Keyes; 'Note on the Identity of Palacheite and Botryogen,' by A. S. Eakle; 'Colloidal Gold: Absorption Phenomena and Allotropy,' by J. C. Blake.

SOCIETIES AND ACADEMIES.

AMERICAN CHEMICAL SOCIETY. NEW YORK SECTION.

THE first meeting of the season was held at the Chemists' Club, No. 108 West 55th Street, on Friday evening, October 9.

* Translated from *Vierteljahrsschrift der Astron. Gesellschaft*, 38. Jahrgang, Erstes Heft, 1903.

After a few remarks by the chairman, Professor Miller, outlining the policy of the section for the ensuing year, and requesting members to present papers in abstract as far as possible, so as to have more time for discussion, the following papers were read:

The Volumetric Determination of Zinc: W. J. WARING.

This paper was read by Mr. Stone and discussed by Messrs. Brenneman, Stone, Miller and Danziger. It called attention to the widely differing results which are obtained by different chemists in the determination of zinc by the ferrocyanide titration method, and pointed out the necessity of uniformity in the conditions of standardizing and titrating, so that the composition of the precipitate shall be uniform. The occurrence of cadmium in the ores of the Joplin District in amounts varying from 0.1 to 2 per cent. was shown to interfere with the accuracy of the method, so that the cadmium should be removed, best by aluminum foil, before the titration. A new cadmium ammonium ferrocyanide was also described.

The Reduction of Lead from Litharge in Preliminary Assays and the Advantages of an Oxide Slag: E. H. MILLER, E. J. HALL and M. J. FALK.

Professor Miller gave an abstract of an article which will soon appear in the *Transactions* of the American Institute of Mining Engineers. It was shown in making preliminary assays to determine the reducing power of an ore that, not only did the amount of lead reduced vary with the acid or basic character of the slag, but that the amount of lead oxidized by niter varied with the reducing agent present, even under uniform conditions as to charge, time and temperature. This was not anticipated, and explains the difficulty in the old preliminary assays.

The best results were obtained by using a charge of ore 3 grams, litharge 50 grams, soda 10 grams, no silica, no borax glass and no salt cover. With this charge and a temperature of over 900° C. the sulphur is completely oxidized to sulphate and forms an upper layer in the slag (Na_2CO_3 and Na_2SO_4), while the lower layer consists of a readily fusible mixture of oxide of lead, of iron, etc.